



UNITED STATES PATENT AND TRADEMARK OFFICE

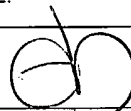
GC

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/511,158	02/23/2000	Hidekazu Nakamoto	500.36898VX1	4119
20457	7590	02/17/2004	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP			LEUNG, JENNIFER A	
1300 NORTH SEVENTEENTH STREET			ART UNIT	
SUITE 1800			PAPER NUMBER	
ARLINGTON, VA 22209-9889			1764	

DATE MAILED: 02/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/511,158	NAKAMOTO ET AL.	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 6 and 7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 24, 2003 has been entered.

Terminal Disclaimer/Double Patenting

2. The terminal disclaimer filed on October 24, 2003 disclaiming the terminal portion of any patent granted on this application that would extend beyond the expiration date of U.S. Patent No. 6,096,838 has been reviewed and is accepted. The terminal disclaimer has been recorded.

3. In view of Applicant's properly filed terminal disclaimer, the rejections made to claims 1, 2, 6 and 7 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 10-11 of US 6,096,838 in view of Schnock et al. have been withdrawn.

Response to Amendment

4. Applicant's amendment submitted on October 24, 2003 has been received and carefully considered. Claims 3-5 are cancelled. Claims 1, 2, 6 and 7 remain active.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Art Unit: 1764

5. Claims 1, 2, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schnock et al. (U.S. 3,591,344).

Regarding claims 1 and 2, Schnock et al. (column 4, line 64 to column 5, line 36) disclose an apparatus comprising:

- (a) a substantially horizontal cylindrical vessel (FIG. 1) provided with an inlet **1** at a lower part at one end thereof, an outlet **7** at the lower part at the other end thereof, and an outlet **6** at the upper part thereof; and
- (b) a stirring rotor (i.e., comprising hubs **8**, **9**) provided with support members (i.e., the two outer disks **41**, **42**, which need not comprise perforations; column 3, lines 36-37) at an end of the inlet side and an end of the outlet side thereof, respectively (column 5, lines 6-7); and a plurality of intermediate hollow disks **4** comprising perforations **5** (FIG. 4a-4e) in the longitudinal direction thereof within the cylindrical vessel;

wherein the apparatus further comprises scraping plates (i.e., drag elements **2**; FIG. 1, 2a-2f) each between adjacent hollow disks **4**, the stirring rotor being without any rotating shaft at the position of a rotating center axis (column 5, lines 34-35), and comprising scraping vanes **2** on the support members **41**, **42** on the vessel inner end wall-facing side (see FIG. 1).

Although Schnock et al. does not specifically illustrate the outer diameter of the support members **41**, **42** being smaller than the outer diameter of the stirring rotor, Schnock et al. further discloses that the disks, "may be of different shape, as shown in FIG. 4d where angular disks alternate with disks of smaller outer diameter," (column 5, lines 28-32) and, "[i]nstead of the perforated disks serving to change the direction of the vaporous there may also be used rings alternating with disks," wherein, "the outer diameter of the rings corresponds to the diameter of

Art Unit: 1764

the stirrer, while the inner diameter of the rings approximately corresponds to that of the nonperforated disks," (column 3, lines 41-46).

In view of the above teachings, it would have been an obvious design choice for one of ordinary skill in the art at the time the invention was made to select a smaller outer diameter for the support members 41, 42 (i.e., comprising the nonperforated outer disks) relative to the outer diameter of the hollow disks 4 (i.e., comprising the perforated intermediate disks, or rings) in the apparatus of Schnock et al., on the basis of suitability for the intended use. In any event, it has been held that changes in size involve only ordinary skill in the art. *In re Rose*, 220 F.2d 459, 463, 105 USPQ 237, 240 (CCPA 1955).

Regarding claims 6 and 7, the same comments with respect to Schnock et al. apply. Schnock et al. disclose the stirring rotor may be divided into a plurality of stirring blocks (i.e., disks 4 of differing configuration, or perforations 5; FIG. 4a-4e; column 5, lines 22-32). In the specification, page 21, line 4 to page 22, line 11, applicants define the "stirring blocks" as a plurality of hollow disks located between the support members, wherein the disks of a given "block" comprise differing configurations. Therefore, disks 4 of Schnock et al., comprising differing configurations, meets the claims. Schnock et al. further discloses the stirring blocks, *inherently*, comprise a structure based upon the viscosity of the liquid feed, as evidenced by the disclosure that, "the installed disks subdivide the reactor into chambers so that uniform residence time is ensured for all parts of the melt in the reactor and the condensation product obtained has a viscosity of high constancy," (column 4, lines 55-58), and "[t]he perforations in the disks may have any other shape provided that they bring about a multiple deflection of the vapours and are large enough not to inhibit the flow of the melt," (column 3, lines 46-59).

Response to Arguments

6. Applicant's arguments filed on October 24, 2003 with respect to the rejection of claims 1, 2, 6 and 7 under 35 U.S.C. 103(a) as being unpatentable over Schnock et al. (U.S. 3,591,344) have been fully considered, but they are not persuasive.

Beginning on page 13 (last paragraph), Applicants argue,

“While Schnock, et al. discloses different sized angular disks, it is emphasized that this patent discloses that the angular disks alternate with disks of smaller outer diameters. Moreover, note that, for example, in Fig. 1 seven disks are shown in the reactor, whereby the sizes of the disks alternating the end disks would have large sizes (that is, with alternating-sized disks, disk 41 is large and disk 42 would also be large). Thus, it is respectfully submitted that the disclosure of Schnock, et al. as a whole would have neither taught nor would have suggests, and in fact would have taught away from, the relative outer diameter sizes of the another support member, at an end of the outlet size, and the outer diameter of the stirring rotor.”

The Examiner respectfully disagrees. Applicants assert that given the alternating-sized disk configuration and the seven-disk example, the two support members **41** and **42** must then comprise disks having *a large outer diameter*. However, one of ordinary skill in the art could just as easily argue that given the alternating-sized disk configuration and the seven-disk example, the two support members **41** and **42** must then comprise disks having *a small outer diameter* (i.e., if we start with alternating small followed by large outer diameter disks, beginning with disk **41**). There is no indication within the disclosure of Schnock et al. that the alternating-sized disk configuration must begin with a larger outer diameter disk followed by a smaller diameter disk, or vice-versa, and therefore the disclosure of Schnock et al. does not teach away from applicant's claimed invention.

On page 14 (second paragraph), Applicants argue,

Art Unit: 1764

"The contention by the Examiner that since Schnock, et al., teaches that the disks may be of different shape, it thus would have been an obvious design choice to select an appropriate outer diameter for the support members 41, 42 in the apparatus of Schnock, et al., is respectfully traversed. It is respectfully submitted that particularly in view of the advantages achieved according to the present invention due to the relative outer diameters, as discussed in the foregoing and as is clear from Applicants' disclose, the conclusion by the Examiner concerning obvious design choice, *without any teaching in the art guiding one to such choice*, is clearly improper under the requirements of 35 USC §103."

The Examiner respectfully disagrees and maintains that Schnock et al. discloses or adequately suggests such concept. For instance, column 3 (lines 32-37, 41-46) of Schnock et al. discloses,

"The disks arranged in vertical position with respect to the axis of the stirrer which subdivide the stirrer are advantageously provided with round, angular, semicircular perforations or perforations having the shape of a circular segment, which are staggered from disk to disk. *The two outer disks need not have such perforations.*"

"Instead of the perforated disks serving to change the direction of the vapours there may also be used rings alternating with disks. In this case, the outer diameter of the rings corresponds to the diameter of the stirrer, *while the inner diameter of the rings approximately corresponds to that of the nonperforated disks.*"

Such is illustrated in FIG. 4d. The two, nonperforated outer disks (i.e., equivalent to the claimed support members 41 and 42) may thus comprise a smaller outer diameter than the perforated intermediate disks or rings (i.e., equivalent to the claimed hollow disks 4). FIG. 1 further illustrates the two outer disks 41 and 42 being nonperforate, and the intermediate hollow disks or rings 4 having perforations 5.

On page 15 (second paragraph), Applicants argue,

"Schnock, et al. at most discloses different sized disks of the rotor, which alternate in size along the reactor, whereby same-sized disks would occur at low-viscosity locations and high-viscosity locations in the reactor. Clearly, Schnock, et al. is not sensitive to the viscosity, with respect to stirring rotor design. It is respectfully

Art Unit: 1764

submitted that Schnock, et al., even in light of the disclosure of alternating disks with different outer diameters, would have neither disclosed nor would have suggested a structure wherein the stirring rotor is divided into a plurality of stirring blocks having structure based upon the viscosity of the liquid feed, as in the present claims.”

The Examiner respectfully disagrees and maintains that Schnock et al. discloses or adequately suggests an apparatus comprising “structure depending upon the viscosity of the liquid feed,” as recited in claims 6 and 7. In column 3 (lines 46-49) and column 4 (lines 55-58), Schnock teach,

“The perforations in the disks may have any other shape provided that they bring about a multiple deflection of the vapours and are *large enough not to inhibit the flow of the melt*,”

“... the installed disks subdivide the reactor into chambers so that *uniform residence time is ensured* for all parts of the melt in the reactor and the condensation product obtained has *a viscosity of high constancy*.”

Such disclosure in combination adequately suggests to one having ordinary skill in the art that the apparatus of Schnock et al. is indeed sensitive to changing levels of viscosity, with respect to the “structure” or stirring rotor design. The “structure” as exhibited by Schnock et al. namely comprises the hollow disks 4 having perforations 5 of a given size and/or shape, wherein the given size and/or shape is a result effective variable depending on whether the perforations are of a size and/or shape, “large enough not to inhibit the flow of the melt” while maintaining a “uniform residence time,” as taught by Schnock et al. above. Thus, the “structure” of Schnock et al. is “based upon the viscosity of the liquid feed” (i.e., the flow of the melt), in relation to the variables of perforation sizing and residence time.

Lastly, it is noted that the features upon which applicant’s arguments rely (i.e., specific structural elements which define the, “structure based upon the viscosity”) are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from

Art Unit: 1764

the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ 2d 1057 (Fed. Cir. 1993). As cited on page 9 (last paragraph) of the response,

“... claims 6 and 7 have been amended to recite that the stirring rotor within the vessel is divided into a plurality of stirring blocks having structure based upon the viscosity of the liquid feed. As can be appreciated from, for example, Fig. 4 of Applicants' original disclosure, the stirring rotor includes a plurality of stirring blocks depending on the viscosity between the inlet and outlet, a distance between adjacent hollow disks being different in the various stirring blocks, and with different inner diameters of the hollow disks and different scraping plate configurations in the different stirring blocks.”

It is noted that a structure comprising “a distance between adjacent hollow disks being different in the various stirring blocks”, “different inner diameters of the hollow disks”, and/or “different scraping plate configurations,” is not recited in the rejected claims.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung

February 2, 2004 



**HIEN TRAN
PRIMARY EXAMINER**